

Remarks

The Examiner rejected claims 19, 20, 21, 24, and 26-28 under 35 USC 103(a) as allegedly being unpatentable over Liebholz et al (US Pat 7,029,852)(“Liebholz”), in view of Melker et al (US Pub 2002/0177232)(“Melker”) and in view of Heynecker (US Pat 6,057,100)(“Heynecker”). The Examiner argued that it would have been obvious to modify the sensor apparatus of Liebholz with the nucleic acid microarray substrates of Heynecker “because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function; the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention.”

Applicants respectfully disagree and submit that the rejection be withdrawn for the following reasons.

Applicants submit herewith a Declaration under 37 C.F.R. 1.132 by Dr. Gary Settles (“Declaration”), an expert in the analyte detection systems.

As acknowledged by the Examiner, Liebholz does not teach a pattern matching that is a neural net or a nucleic acid array formed on a fibrous or particulate support.

The apparatus described in Liebholz relies on impingement of particles to a surface for their detection. The apparatus directs harmful agents onto a non-living bioreceptor surface for use in detecting and classifying them. Liebholz also determines that the term “bioreceptor” refers to a substrate containing a set of chosen sensor molecules. Par. 12 of the Declaration.

The function of Liebholz apparatus requires that the particles must be impinged on the surface. This means that the surface should be solid, such as glass or plastic. Such surfaces are also described in Liebholz. Par. 13 of the Declaration.

Thus, Liebholz works by relying on impingement of particles on a surface. Therefore, a surface that is porous, would not be an ideal surface. This is because many of the particles, such as particles under 10 μm as described by Liebholz, would pass through such a porous substrate and not be impinged on the substrate. This is exemplified by Liebholz, for example, when they describe an optional mechanical filter. Accordingly, a skilled artisan would not substitute the solid substrate surface with a porous substrate surface because such a surface would be much less efficient in capturing particles of the size under 10 μm , such as particles of 1-5 μm in

diameter as described by Liebholtz. This is because while some of the particles would get stuck on the porous surface, many of them would go through. Par. 14 of the Declaration.

Accordingly, contrary to the Examiner's argument, it would not have been obvious to a skilled artisan to replaced the glass or plastic surface of Liebholtz apparatus with a porous surface because such a substitution would render the Liebholtz apparatus much less efficient in impinging particles on the surface with a substrate. For the same reason, a skilled artisan would not have considered combining Liebholtz and Heynecker. Par. 15 of the Declaration.

Accordingly, in view of the above, Applicants respectfully submit that the rejection of claims 19, 20, 21, 24, and 26-28 should be withdrawn.

The Examiner also rejected claims 20, 22, and 25 under 35 USC 103(a) as allegedly being unpatentable over Liebholtz, in view of Melker and in view of Heynecker, and further in view of Sunshine et al (US Pat 6,234,006)("Sunshine").

Applicants respectfully disagree and submit that the rejection be withdrawn for the following reasons.

As discussed, *supra*, due to the mechanism of function of Liebholtz machine, a skilled artisan would not have replaced the solid support with a porous surface of Heynecker because the Liebholtz machine with such a support would have been expected to work with much less efficiency than the machine with a solid support. Sunshine does not cure the deficiency in the skilled artisan's expectation of the function of the Liebholtz machine. All Sunshine shows is the usefulness of a handheld machine.

Accordingly, in view of the above, Applicants respectfully submit that the rejection of claims 20,22 and 25 should be withdrawn.

The examiner further rejected claims 20 and 23 under 35 USC 103(a) as allegedly being unpatentable over Liebholtz, in view of Melker and in view of Heynecker, and further in view of Vivekananda (US Pub 2004/0023266)("Vivekananda").

As discussed, *supra*, due to the mechanism of function of Liebholtz machine, a skilled artisan would not have replaced the solid support with a porous surface of Heynecker because the Liebholtz machine with such a support would have been expected to work with much less efficiency than the machine with a solid support. Vivekananda does not cure the deficiency in the skilled artisan's expectation of the function of the Liebholtz machine. All Vivekananda

shows is the use of a sensor system applied to airport detection system reading of X-ray screening machine.

Accordingly, in view of the above, Applicants respectfully submit that the rejection of claims 20 and 23 should be withdrawn.

The Examiner also rejected claims 19, 20, and 29 under 35 USC 103(a) as allegedly being unpatentable over Liebholz, in view of Melker, and in view of Heynecker, and further in view of Klempner et al (US Pub 2002/0187464) (“Klempner”).

As discussed, *supra*, due to the mechanism of function of Liebholz machine, a skilled artisan would not have replaced the solid support with a porous surface of Heynecker because the Liebholz machine with such a support would have been expected to work with much less efficiency than the machine with a solid support. Klempner does not cure the deficiency in the skilled artisan’s expectation of the function of the Liebholz machine. All Klempner shows is use of another porous substrate, i.e., fiberglass.

Accordingly, in view of the above, Applicants respectfully submit that the rejection of claims 19, 20, and 29 should be withdrawn.

In view of the foregoing, Applicants respectfully submit that all claims are in condition for allowance. Early and favorable action is requested.

In the event that any additional fees are required, the PTO is authorized to charge our deposit account No. 50-0850.

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Respectfully submitted,

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